CLAIMS

1. A composite material for a garment comprising

(a) a water-resistant, water-vapour-permeable, flexible substrate having a first and second side;

(b) a fabric secured to said first side of the substrate; and

(c) a plurality of discrete abrasion-resisting polymeric dots forming a discontinuous lining-forming pattern over the surface of said second side of the substrate and which dots resist abrasion of the flexible substrate.

2. A composite material as claimed in claim 1, in which the dots have a substantially smooth, non-angular profile.

3. A composite material as claimed in claim 2, in which each of the dots has a cross-section in the plane of the substrate which is substantially circular and a cross-section which is substantially part-spherical in a plane normal to the substrate.

4. A composite material as claimed in claim 1, in which the maximum dimension of the cross-section in the plane of the substrate is less than 5000 microns.

5. A composite material as claimed in claim 4, in which said maximum dimension is from 100 to 1000 microns.

6. A composite material as claimed in claim 5, in which said maximum dimension is from 200-800 microns.

7. A composite material as claimed in claim 6, in which said maximum dimension is from 400-600 microns.

8. A composite material as claimed in claim 7, in which each dot has a height in the range of 10 to 200 microns.

9. A composite material as claimed in claim 8, in which each dot has a height in the range of 70 to 140 microns.

10. A composite material as claimed in claim 9, in which each dot has a height in the range of 80 to 100 microns.

11. A composite material as claimed in claim 1, in which the centre of each dot is spaced from the centre of an adjacent dot by 200 to 2000 microns.

12. A composite material as claimed in claim 11, in which the centre of each dot is spaced from the centre of an adjacent dot by 300 to 1500 microns.

13. A composite material as claimed in claim 12, in which the centre of each dot is spaced from the centre of an adjacent dot by 400 to 900 microns.

14. A composite material as claimed in claim 1, in which the ratio of the distance between centres of adjacent dots, the maximum dimension of each dot and the height of each dot is within the range of about 7.5:5:1 to about 15:10:1.

15. A composite material as claimed in claim 1, in which the percentage coverage of the surface of the substrate by the dots is 20 to 80%.

16. A composite material as claimed in claim 15, in which the percentage coverage of the surface of the substrate by the dots is 30 to 70%.

17. A composite material as claimed in claim 16, in which the percentage coverage of the surface of the substrate by the dots is 40 to 60%.

18. A composite material as claimed in claim 1, in which the substrate is a porous membrane.

19. A composite material as claimed in claim 18 in which the porous membrane is expanded polytetrafluoroethylene.

20. A composite material as claimed in claim 18, in which the substrate comprises the porous membrane and a coating of a water-vapour-permeable hydrophilic polymer and to which coating the dots are secured.

21. A composite material as claimed in claim 20, in which the hydrophilic polymer is a polyurethane or polyester.

22. A composite material as claimed in claim 1, in which said dots are formed from an abrasion-resisting polyurethane having an elastic modulus greater than about 800 psi (5.5 Nmm^{-2}).

23. A composite material as claimed in claim 21, in which the dot-forming polyurethane is water-vapour-permeable.

24. A composite material as claimed in claim 1, in which the material was a water resistance of greater than 0.1 kg/cm.

25. A composite material as claimed in claim 1, in which the material has a water-vapour-permeability in excess of 1500 $g/m^2/day$.

26. A composite material as claimed in claim 1, in which the dots are applied in the form of a plurality of rosettes.

27. A composite material as claimed in claim 1, in which the abrasion resistance of the composite material is at least 1.5 times the abrasion resistance of the flexible substrate alone.

28. A garment formed of a composite material comprising

(a) a water-resistant, water-vapour-permeable, flexible substrate having a first and second side;

(b) a fabric secured to said first side of the substrate; and

(c) a plurality of discrete abrasion-resisting polymeric dots forming a discontinuous lining-forming pattern over the surface of said second side of the substrate and which dots resist abrasion of the flexible substrate.

29. A garment as claimed in claim 28, in which the abrasion-resisting polymeric dots form the innermost component of the garment to form a lining.

30. A process of producing a composite material for a garment comprising securing a fabric to a first side of a flexible, water-resistant, water-vapour-permeable substrate; and applying a plurality of abrasion-resisting polymeric dots to a second side of said substrate in order to form a discontinuous lining-forming pattern over the surface of said second side to resist abrasion of the flexible substrate.

31. A process as claimed in claim 30, comprising applying the polymeric dots by means of gravure printing.

32. A process as claimed in claim 30, in which the dots have a substantially smooth, non-angular profile.

33. A process as claimed in claim 32, in which each of the dots has a cross-section in the plane of the substrate which is substantially circular and a cross-section which is substantially part-spherical in a plane normal to the substrate.

34. A process as claimed in any of claims 30, in which the maximum dimension of the cross-section in the plane of the substrate is less than 5000 microns.

35. A process as claimed in claim 34, in which the maximum dimension of the cross-section is from 100 to 1000 microns.

36. A process as claimed in claim 35, in which the maximum dimension of the cross-section is from 200-800 microns.

37. A process as claimed in claim 36, in which the maximum dimension of the cross-section is from 400-600 microns.

38. A process as claimed in claim 30, in which each dot has a height in the range of 10 to 200 microns.

39. A process as claimed in claim 38, in which each dot has a height in the range of 70 to 140 microns.

40. A process as claimed in claim 39, in which each dot has a height in the range of 80 to 100 microns.

41. A process as claimed in claim 30, in which the centre of each dot is spaced from the centre of an adjacent dot by 200 to 2000 microns.

42. A process as claimed in claim 41, in which the centre of each dot is spaced from the centre of an adjacent dot by 300 to 1500 microns.

43. A process as claimed in claim 42, in which the centre of each dot is spaced from the centre of an adjacent dot by 400 to 900 microns.

44. A process as claimed in claim 30, in which the ratio of the distance between centres of adjacent dots, the maximum dimension of each dot and the height of each dot is within the range of about 7.5:5:1 to about 15:10:1.

45. A process as claimed in claim 30, in which the percentage coverage of the surface of the substrate by the dots is 20 to 80%.

46. A process as claimed in claim 45, in which the percentage coverage of the surface of the substrate by the dots is 30 to 70%.

47. A process as claimed in claim 46, in which the percentage coverage of the surface of the substrate by the dots is 40 to 60%.

48. A process as claimed in claim 30, in which the substrate is a porous membrane.

49. A process as claimed in claim 48, in which the porous membrane is expanded polytetrafluoroethylene.

50. A process as claimed in claim 48, in which the substrate comprises the porous membrane and a coating of a water-vapour-permeable hydrophilic polymer and to which coating the dots are secured.

51. A process as claimed in claim 50, in which the hydrophilic polymer is a polyurethane or polyester.

52. A process as claimed in claim 30, in which said dots are formed from an abrasion-resisting polyurethane having an elastic modulus of greater than 800 psi (5.5 N/mm^{-2}).

53. A process as claimed in claim 51, in which the dot-forming polyurethane is water-vapour-permeable.

54. A process as claimed in claim 30, in which the material was a water resistance of greater than 0.1 kg/cm.

55. A process as claimed in claim 30, in which the material has a water-vapour-permeability in excess of 1500 $g/m^2/day$.

56. A process as claimed in claim 30, in which the dots are applied in the form of a plurality of rosettes.

57. A process as claimed in claim 30, in which the abrasion resistance of the composite material is at least 1.5 times the abrasion resistance of the flexible substrate alone.



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